

PTO/SB/96 (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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**STATEMENT UNDER 37 CFR 3.73(b)**Applicant/Patent Owner: HopkinsApplication No./Patent No.: \_\_\_\_\_ Filed/Issue Date: March 22, 2004Entitled: FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMSHUNTAIR INC., a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest; or2. ☐ an assignee of less than the entire right, title and interest.The extent (by percentage) of its ownership interest is \_\_\_\_\_ %  
in the patent application/patent identified above by virtue of either:A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

OR

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

1. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
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2. From: \_\_\_\_\_ To: \_\_\_\_\_

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3. From: \_\_\_\_\_ To: \_\_\_\_\_

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Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.☐ Additional documents in the chain of title are listed on a supplemental sheet.☐ Copies of assignments or other documents in the chain of title are attached.

[NOTE: A separate copy (i.e., the original assignment document or a true copy of the original document) must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be recorded in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

March 22, 2004

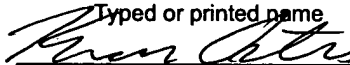
Date

(503) 810-2560

Telephone number

Karen Dana Oster

Typed or printed name



Signature

Patent Attorney 37,621

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Hunt:FanArr1

PTO/SB/01A (08-03)

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# **DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)**

<b>Title of Invention</b>	<b>FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS</b>
<p>As the below named inventor(s), I/we declare that:</p> <p>This declaration is directed to:</p> <p><input checked="" type="checkbox"/> The attached application, or</p> <p><input type="checkbox"/> Application No. _____, filed on _____</p> <p><input type="checkbox"/> as amended on _____ (if applicable);</p> <p>I/we believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;</p> <p>I/we have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;</p> <p>I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application.</p> <p>All statements made herein of my/own knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.</p>	

<b>FULL NAME OF INVENTOR(S)</b>	
Inventor one:	<b>Lawrence G. Hopkins</b>
Signature: <i>Lawrence G. Hopkins</i>	Citizen of: <b>U.S.</b>
Inventor two: _____	
Signature: _____	Citizen of: _____
Inventor three: _____	
Signature: _____	Citizen of: _____
Inventor four: _____	
Signature: _____	Citizen of: _____
<input type="checkbox"/> Additional inventors or a legal representative are being named on _____ additional form(s) attached hereto.	

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Hunt:FanArr1

**APPLICATION DATA SHEET****Application Information**

Application Number:: Concurrently Herewith  
 Filing Date:: March 22, 2004  
 Application Type:: Regular  
 Subject Matter:: Utility  
 Title:: FAN ARRAY FAN SECTION  
 IN AIR-HANDLING SYSTEMS  
 Attorney Docket Number:: Hunt:FanArr1  
 Request For Early Publication:: No  
 Request For Non-Publication:: No  
 Suggested Drawing Figure:: 3  
 Total Drawing Sheets:: 15  
 Small Entity:: Yes

**Applicant Information**

Applicant Authority Type:: Inventor  
 Primary Citizenship Country:: U.S.  
 Status:: Full Capacity  
 Given Name:: Lawrence  
 Middle Name:: G.  
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 Name Suffix::  
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 State Or Province Of Residence:: Oregon  
 Country Of Residence:: U.S.  
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 City Of Mailing Address:: Portland  
 State Or Province Of Mailing Address:: Oregon  
 Country Of Mailing Address:: U.S.  
 Postal Or Zip Code Of Mailing Address:: 97266

**Correspondence Information**

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 Phone Number:: (503) 810-2560  
 Fax Number:: (503) 638-0367  
 E-Mail Address:: Karen@kdopatent.com

**Representative Information**

Representative Customer Number::	26790
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**Domestic Priority Information**

Application::	Continuity Type::	Parent Application::	Parent Filing Date::
This Application	An application claiming the benefit under 35 USC 119(e)	60/456,413	03/20/03
This Application	A continuation in part		03/19/04
This Application	An application claiming the benefit under 35 USC 119(e)		03/20/04

**Assignee Information**

Assignee Name:: HUNTAIR INC.  
 Primary Citizenship Country:: Oregon  
 Street Of Mailing Address:: 11555 SW Myslony Street  
 City Of Mailing Address:: Tualatin  
 State Or Province Of Mailing Address:: Oregon  
 Country Of Mailing Address:: USA  
 Postal Or Zip Code Of Mailing Address:: 97062

PTO/SB/08a (08-03)

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Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 1 of 2

**Complete if Known**

Application Number	
Filing Date	March 22, 2004
First Named Inventor	Hopkins
Art Unit	
Examiner Name	
Attorney Docket Number	Hunt:FanArr1

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 4767262	08-30-1988	Simon	
		US- 4133374	01-09-1979	York	
		US- 5632677	05-27-1997	Elkins	
		US- 6155335	12-05-2000	Acre et al.	
		US- 6386969 B1	05-14-2002	O'Brien	
		US- 6388880 B1	05-14-2002	El-Ghobashy et al.	
		US- 6407918 B1	06-18-2002	Edmunds et al.	
		US- 6414845 B2	07-02-2002	Bonet	
		US- 6427455 B1	08-06-2002	Furubayashi	
		US- 6436130	08-20-2002	Philips et al.	
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**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	
				Filing Date	
				First Named Inventor	
				Art Unit	
				Examiner Name	
Sheet	2	of	2	Attorney Docket Number	Hunt:FanArr1

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		The Parallel and Series Operation, Sunon Group web page, <a href="http://www.sunon.com/english/wealth/tech/tech-06.htm">http:// www.sunon.com/english/wealth/tech/tech-06.htm</a> , at least as early as March 15, 2004, 2 pages, Sunon Group, Taiwan.	
		Series and Parallel Fans, HighBeam Research web page, <a href="http://static.highbeam.com/m/machinedesign/january261995/seriesandparallelfans/index.htm">www://static.highbeam.com/m/machinedesign/january261995/seriesandparallelfans/index.htm</a> , January 26, 1995, 1 page, HighBeam Research, LLC.	
		MCLEOD, IAN, Using Fans in Series and Parallel: Performance Guidelines, embpapst web page, <a href="http://www.papstplc.com/features/articles/art006&amp;print=true">http://www.papstplc.com/features/articles/art006&amp;print=true</a> , at least as early as March 15, 2004, 3 pages, emb-Papst Automotive and Drives (UK) Ltd., UK.	
		Technical Bulletin: CLEANPAK M/R/PF Multi/Redundant/Plenum Fan, at least as early as March 15, 2004, 3 pages, CLEANPAK International, Clackamas, Oregon.	
		Installation Operating and Maintenance Manual, 2003, 12 pages, Greenheck Fan Corp., Schofield, Wisconsin.	
		DPL Series - Delhi Plenum Fan: Installation and Maintenance Instructions, November 2001, 2 pages, Delhi Industries Inc., Delhi, Ontario, Canada.	

Examiner Signature	Date Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

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**PATENT APPLICATION FEE DETERMINATION RECORD**

Effective October 1, 2003

Application or Docket Number

10806775

**CLAIMS AS FILED - PART I**

	(Column 1)	(Column 2)
TOTAL CLAIMS	20	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	20 minus 20 =	*
INDEPENDENT CLAIMS	2 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT <input type="checkbox"/>		

\* If the difference in column 1 is less than zero, enter "0" in column 2

**SMALL ENTITY TYPE** ☐**OR OTHER THAN SMALL ENTITY**

RATE	FEE
BASIC FEE	385.00
X\$ 9=	
X43=	
+145=	
TOTAL	385

RATE	FEE
BASIC FEE	770.00
X\$18=	
X86=	
+290=	
TOTAL	

**CLAIMS AS AMENDED - PART II**

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total *	Minus **	=
	Independent *	Minus ***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>		

**SMALL ENTITY** ☐**OR OTHER THAN SMALL ENTITY**

RATE	ADDITIONAL FEE
X\$ 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total *	Minus **	=
	Independent *	Minus ***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>		

RATE	ADDITIONAL FEE
X\$ 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total *	Minus **	=
	Independent *	Minus ***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>		

RATE	ADDITIONAL FEE
X\$ 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

\*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

PATENT APPLICATION SERIAL NO. \_\_\_\_\_

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE  
FEE RECORD SHEET

03/25/2004 MBELETE1 00000004 10806775

01 FC:2001

385.00 OP

PTO-1556

(5/87)

U.S. Government Printing Office: 2001 — 481-697/59173

CL 84



# Appendix A



## CLEANPAK International

### Home

Recirculation Air Handler

Air Handling Unit

Air Movement Features

Fan Filter Units

Small Cabinet Fans

Ceiling Systems

- Clean-Trak

- SealTrak

- T-Trak

- SlimTrak

- Plenums

Ceiling System Features

- Lighting Calculations

- Fire Protection

Advantage Wall System

Access Floors

Parts Catalog

Search

info@cleanpak.com

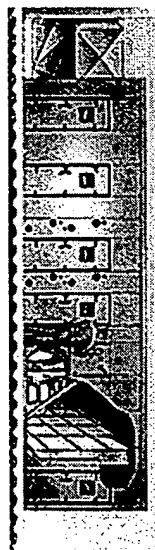
503 557 4500

### Air Movement Products

CLEANPAK offers a range of custom air handling products from fan filter units and recirculation air handlers to true no-through-metal thermal break air handling units and makeup air handling units for the cleanroom industry with semiconductor specific and life science specific products.

### Ceiling Systems Products

CLEANPAK offers an array of modular and stick-built ceiling systems and plenums in patented flush and T-grid style, patented Bottom-Load Flush grid system, and a wealth of ceiling accessories and options such as our patented Clean-Screens®, Equalizers®, DualSeal Ports™, T5 lighting, and patented Gellink™, powder coated and stainless steel grid, and fiber optic grid lighting for hazardous areas.

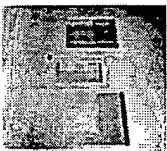


### Modular Cleanrooms

CLEANPAK offers the Servicor CPI line of modular cleanrooms.

### Cleanroom Wall Systems

CLEANPAK offers the Advantage Cleanroom Wall System™ for maximum utility and flexibility.



*helped to develop*

CLEANPAK is focused on designing and supplying clean room products and equipment. We target the semiconductor, pharmaceutical, aerospace, biotechnology, and nanotechnology industries, as well as research laboratories and universities.

CLEANPAK ushered in a new era in cleanroom design with the use of direct drive plenum fans, now the standard for distributed recirculation air handler systems. We pioneered the use of the flush grid known as Clean-Trak®, which provides unparalleled flexibility and performance. We developed the first flexible sprinkler system, the first welded grid module, the first no fastener air handler cabinet, the Econo-Disk® for

### NEWS

CLEANPAK Intel announces the release of the Advantage Cleanroom Wall from ASD. Development input from both users and installed Advantage Clean System is designed to provide maximum performance and flexibility.

The addition of Advantage Clean System continues to provide innovative products designed to meet the industry-specific requirements of customers.

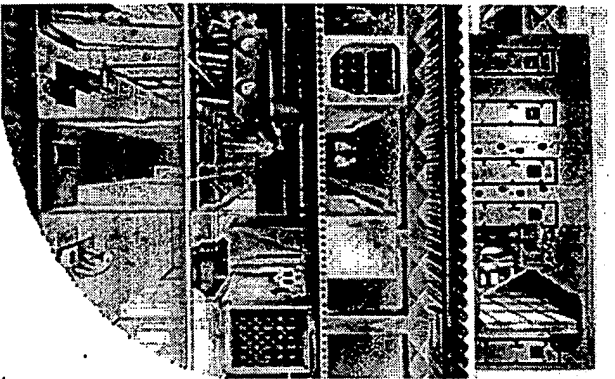
### FEATURED

Technical bullet multi/redundant applications.

CLEANPAK Intel offers a seamless steel bottom-load system designed to meet the most stringent guidelines of the pharmaceutical biotechnology industry.

98 CL

*Current code SH*



volume control, the P-Cone® for airflow monitoring, low outgassing urethane gel, high-efficiency fan filter units with smart communications, high efficiency vane-axial fan units, Room-side Straight Load grid system, Gellink seal, DualSeal Ports--all CLEANPAK inventions that improve the way facilities operate. CLEANPAK has never stopped building on this strong foundation. The overall strengths we bring to the marketplace--innovation, high technology, breadth of product offerings, employee training and loyalty to customers--are evidenced by our history and are unsurpassed by any other supplier.

A number of pages contain documents that must be viewed with Acrobat reader, which you can download by clicking the "Get Acrobat Reader" image.



Products may be protected by one or more of the following US patents: 5,613,759; 5,794,397; 5,014,608; 6,209,275; 6,351,920; 5,161,941; 5,088,886; 5,192,348; 5,207,615,586,861; 5,628,581; 5,681,143 and foreign patents. Patents pending. All rights reserved.

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CL 87

# Appendix B



## Technical Bulletin CLEANPAK M/R/PF Multi/Redundant/Plenum Fan

The application of multiple fans in a common system, in part, provided the impetus of the design of the "plug" fan years ago. CLEANPAK International has incorporated multiple fans in common cabinets for several years to provide systems that require redundancy, to meet architectural profile requirements, and for space savings. The arrangements may be vertical up or down flow or horizontal. The notes below apply generally, but often relate to redundancy issues, which is a benefit of multiple fan operation whether a design requirement or not.

### General

There are three general arrangements for multiple plenum fan configurations as noted below. Each arrangement has its benefits.

**1+1:** 2 fans can be provided in a cabinet with either fan capable of supplying 100% of the design flow requirement. This would provide 100% redundancy. Normal operation can be simultaneous or independent.

**Twin:** 2 fans can be provided in a cabinet with both fans required for the design flow. This arrangement provides capacity in excess of 50% if a single fan fails, since the system pressure drop falls by the square root of the volume decrease. Additional capacity can be provided by ramping the VFD up to the limit of the motor full load amps. Normal operation is always simultaneous.

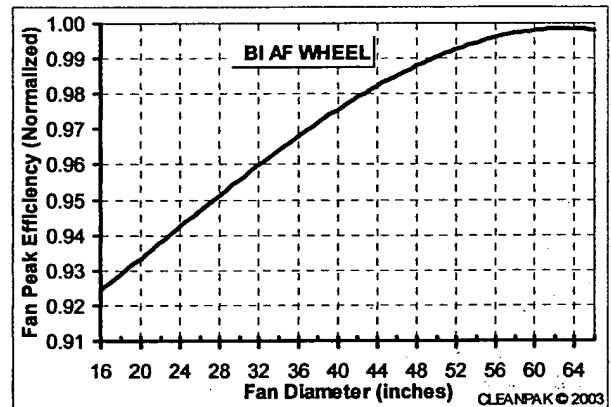
**Xn+1:** This system provides a measure of redundancy by providing a number of fans smaller than that required by the 1+1 arrangement. The failure of a single fan is accommodated by the initiation of an unused fan, or the ramp up of all remaining fans. The number of fans can be as high as 12-18, although it is not limited. Normal operation is always simultaneous.

### Airflow Isolation

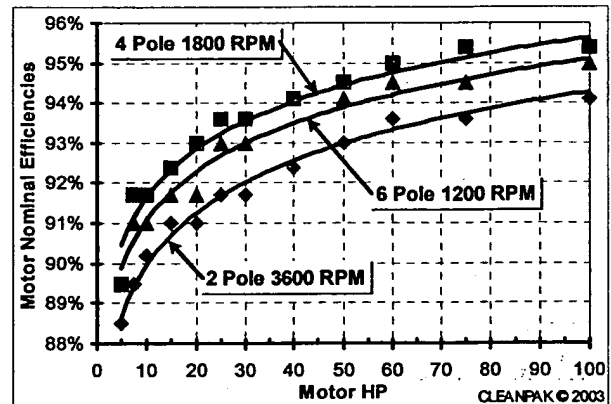
- Inlet or discharge isolation dampers with a solid dividing wall can be provided for fan service of an inoperative fan while operating at design flow for the 1+1 system. The damper pressure drop should be included in the calculation of the total static pressure (TSP).
- An Econo-Disk® may be provided for manual or automatic fan isolation for any of the applications, although as the fans become smaller (18" and under) performance penalties may result. Econo-Disk shutoff characteristics are excellent.
- Inlet isolation dampers can be provided and function similar to, but not as efficiently as, the Econo-Disk. Back draft dampers (heavy duty) can be used but may provide unstable operation at low flows. The damper pressure drop should be included in TSP calculations.
- If some sort of fan isolation is not provided, system performance will suffer a dramatic decrease with a fan failure, due to back flow through the failed fan.

### Efficiency

- Larger diameter fans have significantly higher peak efficiencies than smaller diameter fans. Selecting fans at optimum efficiency for an operating point requires the ability to vary wheel width and operating speed.
- Larger motors are significantly more efficient than smaller motors.
- Motors operated at 75% full load are slightly more efficient than those that operate at 100% full load.



Fan efficiencies are generally higher for larger size fans



Motor efficiencies are higher for larger size motors



## Technical Bulletin CLEANPAK M/R/PF Multi/Redundant/Plenum Fan

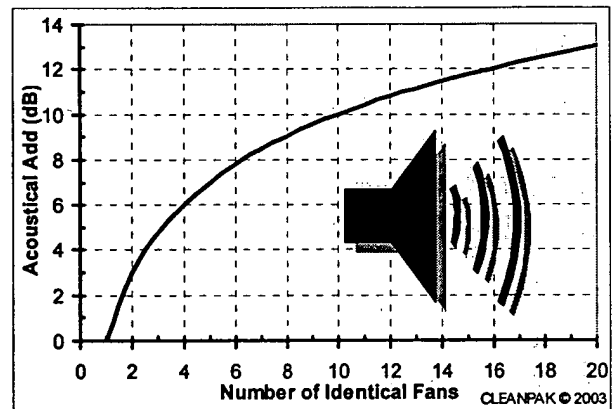
- System efficiency can be improved with internal and external pressure loss reductions such as low velocity coils and high capacity filters.

### Dimensions

- For 1+1 systems, inlet and discharge plenum lengths may depend on the normal operating condition. Multiple fan configurations allow for more even velocity profiles for any given length than a single fan configuration.
- Larger fans take more airway length than smaller fans. Service access behind fans is similar for both large and small fans.
- Isolation dampers on the fan inlet increase the airway length.
- Isolation dampers on the fan outlet increase the airway length.
- Large numbers of fans operating as in  $Xn+1$  can reduce the airway length compared to the 1+1 arrangement, particularly if the 1+1 design has an independent operating design rather than a simultaneous operating design.
- Unusual profiles may be accommodated with larger numbers of fans ( $Xn+1$ ).

### Pressure/Volume Control

- VFDs work well when the system follows the fan laws but do not work well if volume varies but the ESP is high and constant, or the fans operate with multiple volumes and constant pressure.
- The Econo-Disk can be used to provide volume control while maintaining design pressure with the simultaneous operation described in 1+1.
- Econo-Disks can be used for both volume and pressure control with manual, pneumatic, or electric actuation.
- Econo-Disks can be used with VFDs for increased flexibility and efficiency.
- Multiple fans such as  $Xn+1$  can be staged and manipulated with VFDs and isolation dampers to offer constant pressure with variable volume.
- Multiple, simultaneous operating fans are generally operated at the same speed.
- Inlet isolation dampers can be used for volume control by "riding the curve" although this is not recommended since it is an inefficient method and may result in unstable operation.



*Acoustical add for multiple sources*

### Sound

- Manufacturers' bare fan sound levels should be adjusted for multiple fan operation. Sound power levels are 11dB higher for 12 fans operating than for only one of the twelve.
- Smaller fans operate at higher speeds than larger fans for any given pressure. This shifts the primary tone of the fan (or blade passage frequency) to higher frequencies and may shift it to a higher octave band. Generally speaking this is advantageous in that higher frequencies are typically attenuated more easily.
- There is a potential for acoustical beats to arise with multiple fan systems.

### Vibration Isolation

- 1+1 and twin fan operations are usually internally spring isolated.
- $Xn+1$  systems with stacked fans, racked, are usually provided without internal isolation, but can be internally spring isolated.

### Service

- Smaller fans and motors are easier to physically manipulate than large fans and motors.



## Technical Bulletin CLEANPAK M/R/PF Multi/Redundant/Plenum Fan

- Larger numbers of fans, motors, VFDs, dampers, and damper actuators increase service requirements and increase the potential points of failure.
- Generally a fan will be isolated until a system shutdown for major service, or if the fans are screened service is performed while one or more fans are operating.
- Service in an active air stream, without pressure and flow interference can be performed most easily with an airlock.
- Taperlock fan hubs offer quicker and simpler motor/fan wheel replacements than straight bore hubs.
- Bearing life is unaffected by the number of fans operating (1+1 or  $X_n+1$ ), as the fewer fans use larger motors and bearings and operate at slower speeds.
- Aluminum wheels reduce the bearing load.
- Spare parts are less costly for small fans compared to larger fans.

### Electrical

- 100% redundancy systems (1+1) require greater electrical service requirements than other systems but are as efficient or more efficient during operation.
- If single VFDs are used to run multiple motors, each motor requires separate overload protection. VFD to motor lead length is the sum of all the lead lengths fed by a single VFD.
- Multiple VFDs reduce the need for VFD bypass options.

### Initial Cost

- \$/CFM are lower for larger fans.
- \$/HP are lower for larger motors and VFDs.
- Cabinet costs may be reduced with  $X_n+1$  systems, due to the reduced cabinet length.

In the application of multiple smaller fans, one should consider several factors that affect initial cost, operating efficiency, redundancy, and reliability. The discussion above should help the designer evaluate the various options. Optimizing for single or multiple fan applications calls for flexibility from the air handling unit manufacturer. Please contact CLEANPAK's technical staff for further information and assistance with your application.

# Appendix C





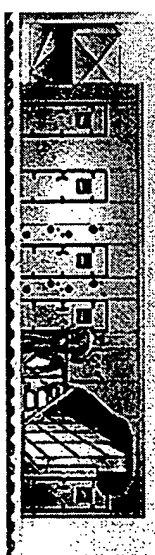
## CLEANPAK International

### Air Movement Products

CLEANPAK offers a range of custom air handling products from fan filter units and recirculation air handlers to true no-through-metal thermal break air handling units and makeup air handling units for the cleanroom industry with semiconductor specific and life science specific products.

### Ceiling Systems Products

CLEANPAK offers an array of modular and stick-built ceiling systems and plenums in patented flush and T-grid style, patented Bottom-Load Flush grid system, and a wealth of ceiling accessories and options such as our patented Clean-Screens®, Equalizers®, DualSeal Ports™, T5 lighting, and patented Gellink™, powder coated and stainless steel grid, and fiber optic grid lighting for hazardous areas.



Cleanpak is focused on designing and supplying cleanroom products. We target the semiconductor, pharmaceutical, aerospace, biotechnology, and nano-technology industries, as well as research laboratories and universities.

- Home
- Recirculation Air Handler
- Air Handling Unit
- Air Movement Features
- Fan Filter Units
- Ceiling Systems
Flush grid: Clean-Trak
SealTrak
T grid: T-Trak SlimTrak
Plenums
- Ceiling System Features
- Lighting Calculations
- Fire Protection
- Access Floors
- Parts Catalog
- Quality Assurance
- Search
info@cleanpak.com
503 557 4500

CLEANPAK ushered in a new era in cleanroom design with the use of direct drive plenum fans, now the standard for distributed recirculation air handler systems. We pioneered the use of the flush grid known as Clean-Trak®, which provides unparalleled flexibility and performance. We developed the first flexible sprinkler system, the first welded grid module, the first no fastener air handler cabinet, the Econo-Disk® for volume control, the P-Cone® for airflow monitoring, low outgassing urethane gel, high-efficiency fan filter units with smart communications, high efficiency vane-axial fan units, Room-side Straight Load grid system, Gellink seal, DualSeal Ports--all CLEANPAK inventions that improve the way facilities operate. CLEANPAK has never stopped building on this strong foundation. The overall strengths we bring to the marketplace--innovation, high technology, breadth of product offerings, employee training and loyalty to customers--are evidenced by our history and are unsurpassed by any other supplier.

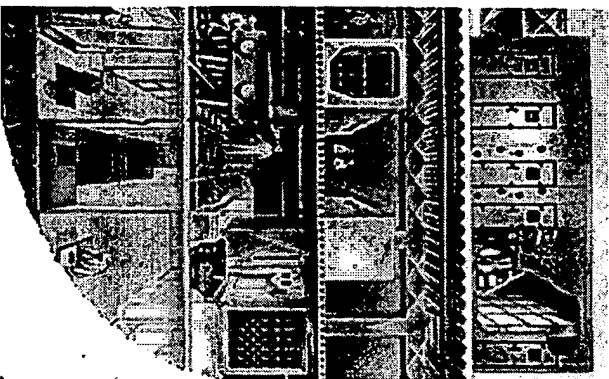
3-27-2003

<http://web.archive.org/web/20030327034256/http://www.cleanpak.com/>

Clean rooms, Air Movement Products, Air Handler, Fan Filter Unit, Cleanroom ceilings, Flush and T grid Ceiling Systems

Page 1 of 2

Cleanpak - Air Movement Products - Air Handler, Fan Filter Unit - Cleanroom Flush and T grid Ceiling Systems - Electrical B... Page 2 of 2



A number of pages contain documents that must be viewed with Acrobat reader, which you can download by clicking the "Get Acrobat Reader" image.



Products may be protected by one or more of the following US patents: 5,613,759; 5,794,397; 5,014,608; 6,351,920; 5,161,941; 5,088,886; 5,192,348; 5,207,614; 5,454,756; 5,586,861; 5,628,581; 5,681,143. Patents pending. All rights reserved.

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# Appendix D



## CLEANPAK International

- Home
- Recirculation Air Handler
- Air Handling Unit
- Air Movement Features
- Fan Filter Units
- Ceiling Systems
Flush grid: Clean-Trak
SeaTrak
T grid: T-Trak SlimTrak
Plenums
- Ceiling System Features
- Lighting Calculations
- Fire Protection
- Advantage Wall System
- Access Floors
- Parts Catalog
- Quality Assurance
- Search
info@cleanpak.com
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### Air Movement Products

CLEANPAK offers a range of custom air handling products from fan filter units and recirculation air handlers to true no-through-metal thermal break air handling units and makeup air handling units for the cleanroom industry with semiconductor specific and life science specific products.

### Ceiling Systems Products

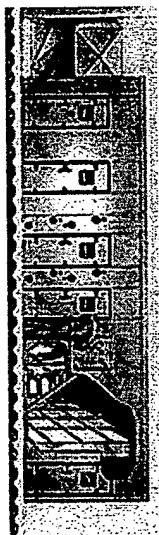
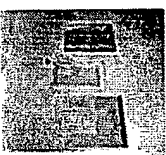
CLEANPAK offers an array of modular and stick-built ceiling systems and plenums in patented flush and T-grid style, patented Bottom-Load Flush grid system, and a wealth of ceiling accessories and options such as our patented Clean-Screens®, Equalizers®, DualSeal Ports™, T5 lighting, and patented Gellink™, powder coated and stainless steel grid, and fiber optic grid lighting for hazardous areas.

### Modular Cleanrooms

CLEANPAK offers the Servitor CPI line of modular cleanrooms.

### Cleanroom Wall Systems

CLEANPAK offers the Advantage Cleanroom Wall System™ for maximum utility and flexibility.

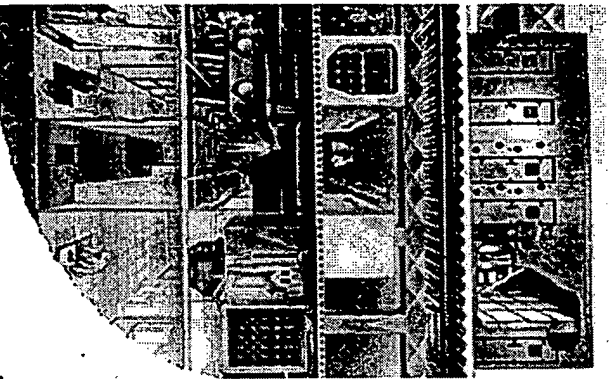


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bring to the marketplace--innovation, high technology, breadth of product offerings, employee training and loyalty to customers--are evidenced by our history and are unsurpassed by any other supplier.

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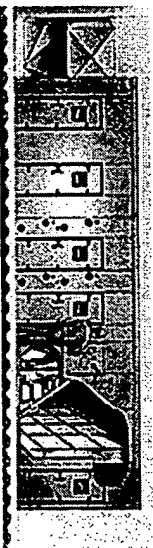
# Appendix E



## CLEANPAK International

### Air Movement Products

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### Home

Recirculation Air Handler

Air Handling Unit

Air Movement Features

Fan Filter Units

Small Cabinet Fans

Ceiling Systems

- Clean-Trak
  - SealTrak
  - T-Trak
  - SlimTrak
  - Plenums
- Ceiling System Features
- Lighting Calculations
  - Fire Protection

Advantage Wall System

Access Floors

Parts Catalog

Search

info@cleanpak.com  
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### Ceiling Systems Products

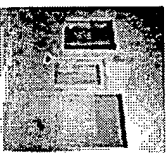
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### NEWS

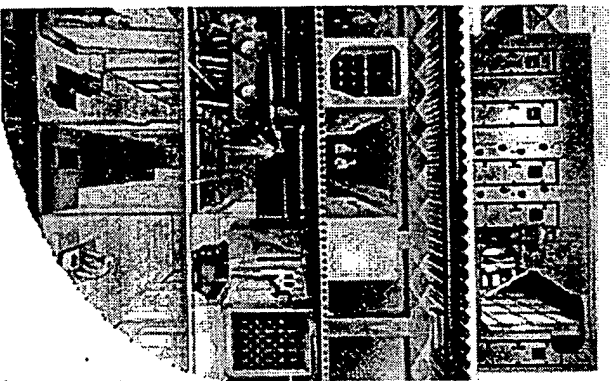
CLEANPAK International announces the i of the Advantage Cleanroom Wall from ASD. Deve input from both users and instal Advantage Clea System is desig provide maximl and flexibility.

The addition of Advantage Clea System continu International's c to provide innov products design the industry-spr requirements of customers.

### FEATURED

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efficiency fan filter units with smart communications, high efficiency vane-axial fan units, Room-side Straight Load grid system, Gellink seal, DualSeal Ports--all CLEANPAK inventions that improve the way facilities operate. CLEANPAK has never stopped building on this strong foundation. The overall strengths we bring to the marketplace--innovation, high technology, breadth of product offerings, employee training and loyalty to customers--are evidenced by our history and are unsurpassed by any other supplier.

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Petition dated March 22, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT APPLICATION EXAMINING OPERATIONS

Applicant: Lawrence G. Hopkins                      Group Art Unit:  
Serial No.:    Examiner:  
Filed: March 22, 2004                                      Docket No: Hunt:FanArr1  
Title: FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS

PETITION TO MAKE SPECIAL BECAUSE OF ACTUAL INFRINGEMENT  
(37 C.F.R. § 1.102 AND M.P.E.P. § 708.02)

Law Office of Karen Dana Oster, LLC  
PMB 1020  
15450 SW Boones Ferry Rd. #9  
Lake Oswego, OR 97035  
March 22, 2004

Mail Stop Patent Application  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Applicant hereby petitions to make this application special because of actual infringement.

Accompanying this petition is a Statement of Facts in Support of Petition to Make Special Because of Actual Infringement and a Statement by Attorney in Support of Petition to make Special Because of Actual Infringement.

The fee required is to be paid by the attached check for \$130.00. The Commissioner is hereby authorized to charge any additional fee, or credit any overpayment, to Deposit Account No. 50-2115. A duplicate copy of this sheet is enclosed.

The person making this statement is the attorney who signs below on the basis of the information supplied by the inventor and the information in the file.

Respectfully submitted,

03/25/2004 MBELETE1 00000004 10806775

02 FC:1460

130.00 OP



Karen Dana Oster  
Reg. No. 37,621  
Of Attorneys of Record  
Tel: (503) 810-2560

Petition dated March 19, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT APPLICATION EXAMINING OPERATIONS

Applicant: Lawrence G. Hopkins                      Group Art Unit:  
Serial No.:    Examiner:  
Filed: March 22, 2004                                      Docket No: Hunt:FanArr1  
Title: FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS

STATEMENT OF FACTS IN SUPPORT OF PETITION TO MAKE SPECIAL  
BECAUSE OF ACTUAL INFRINGEMENT (M.P.E.P. § 708.02)

Law Office of Karen Dana Oster, LLC  
PMB 1020  
15450 SW Boones Ferry Rd. #9  
Lake Oswego, OR 97035  
March 22, 2004

Mail Stop Patent Application  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

I, Lawrence G. Hopkins, whose address is 10781 SE Idleman Rd.,  
Portland, OR 97266, am the inventor for the above-referenced patent application, and I  
hereby state the following:

1. I have been working in the air handling industry for 19 years. I  
received a Bachelor of Science degree in Mechanical Engineering from the University of  
Portland, in 1975 and obtained a Professional Engineering license in Oregon in 1982. I  
have authored numerous papers on fan and air handler design and presented papers at  
industry technical meetings such as the American Society for Heating, Refrigeration and  
Air conditioning Engineers, Cleanrooms and the Air Movement and Control Association.  
Currently, I am the Engineering Manager at HUNTAIR INC., the assignee of the present  
application. HUNTAIR INC. is a leader in airflow management for semiconductor  
manufacturing and the commercial/industrial air handling markets.

Petition dated March 22, 2004

2. I invented the present invention. The invention goes against conventional wisdom pertaining to the use of multiple fans and spacing of multiple fans in air handling systems.

3. On March 20, 2003, United States Provisional Application 60/456,413 was filed in the Patent and Trademark Office. The present application claims priority from this provisional application.

4. After March 20, 2003, HUNTAIR INC. began marketing the invention described in the provisional application.

5. On or about October 12<sup>th</sup>, 2003, I became aware that Cleanpak International was bidding on projects based on the specifications of our inventions. This was my first indication of the existence of the product that I allege infringes at least one claim of the present application. I became aware of this after making a joint presentation with Richard Spradling of HUNTAIR INC., to Argonne Labs in Chicago. Upon learning of our invention, its my understanding representatives from Cleanpak International offered to build a Fan Wall Array and presented this capability to the project designers at the Architect Engineering firm of Grumman-Butkus.

6. There is an actual infringement of this invention. Cleanpak International is currently offering the claimed invention for sale on their web site ([www.cleanpak.com](http://www.cleanpak.com) a copy of which is attached as Appendix A). Specifically, on the web site they have a Technical Bulletin in which they offer the CLEANPAK M/R/PF Multi/Redundant/Plenum Fan (attached as Appendix B). As an example of an infringing product, one of the products is described in the Technical Bulletin as an  $X_{n+1}$  in which the "number of fans can be as high as 12-18, although it is not limited." The Technical Bulletin also specifies that "the  $X_{n+1}$  can reduced the airway length." In the Vibration Isolation section of the Technical Bulletin, it is specified that  $X_{n+1}$  systems may include stacked fans. Other descriptions of the  $X_{n+1}$ , how it works, and its advantages are also described in the Technical Bulletin.

7. A review of the Cleanpak International web site on March 27, 2003 (attached as Appendix C), April 7, 2003 (attached as Appendix D), and June 17, 2003 (attached as Appendix E) using the Wayback Machine at <http://web.archive.org> shows that Cleanpak International's Technical Bulletin was not on Cleanpak International's

Petition dated March 22, 2004

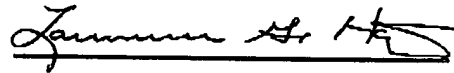
web site before June 17, 2003 (the most recent date available on the Wayback Machine.

8. It is my belief that Cleanpak International became aware of HUNTAIR INC.'s product and began offering its Xn+1 product in response thereto.

9. I declare that all statements made herein are of my own knowledge, are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

The person making this statement is the inventor of the present invention.

Respectfully submitted,



Lawrence G. Hopkins  
Inventor  
Tel: (503) 403-4429

<b>Applicant:</b>	<b>Lawrence G. Hopkins</b>	<b>Group Art Unit:</b>
<b>Serial No.:</b>		<b>Examiner:</b>
<b>Filed:</b>	<b>March 22, 2004</b>	<b>Docket No:</b> Hunt:FanArr1
<b>Title:</b>	<b>FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS</b>	

Petition dated March 22, 2004

this application. All of the claimed elements of at least one of the claims are present in the Xn+1 product. Accordingly, in my opinion I believe that at least one of the claims on file in this application is unquestionably infringed.

4. In my opinion, and for exemplary purposes only, claim 1 on file in this application is unquestionably infringed. Claim 1 is currently pending as follows:

A fan array fan section in an air-handling system comprising:

- (a) at least three fan units;
- (b) said at least three fan units arranged in a fan array;
- (c) an air-handling compartment within which said fan array of fan units is positioned; and
- (d) an array controller for controlling said at least three fan units to run at peak efficiency.

According to the Technical Bulletin, Cleanpak International's Xn+1 product may include 12-18 fans (although the number is not limited), which clearly satisfies the element of "at least three fans." According to the Technical Bulletin, the fans may be stacked, which would correspond to the element of the "fan units arranged in a fan array." Cleanpak International's Xn+1 product would be implemented within an air-handling compartment. Cleanpak International's VFD which is used to run multiple motors would satisfy the element of the array controller.

5. In my opinion, and for exemplary purposes only, claim 10 on file in this application is unquestionably infringed. Claim 10 is currently pending as follows:

A fan array fan section in an air-handling system comprising:

- (a) an air-handling compartment;
- (b) a plurality of fan units;
- (c) said plurality of fan units arranged in a fan array;
- (d) said fan array having at least one fan unit stacked vertically on at least one other fan unit.
- (e) said fan array positioned within said air-handling compartment.

Cleanpak International's Xn+1 product would be implemented within an air-handling compartment (elements (a) and (e)). According to the Technical Bulletin, Cleanpak International's Xn+1 product may include 12-18 fans (although the number is

Petition dated March 22, 2004

not limited), which clearly satisfies the element of "a plurality of fan units." According to the Technical Bulletin, the fans may be stacked, which would correspond to the element of the "fan units arranged in a fan array." In the Vibration Isolation section of the Technical Bulletin, it is specified that  $X_{n+1}$  systems may include stacked fans, which would satisfy the element of the "fan array having at least one fan unit stacked vertically on at least one other fan unit."

6. Applicant caused to be made a careful and thorough search of the prior art by a respected Washington search agent. I have reviewed the patents found in the formal search and believe that the claimed invention is patentable over the found references. All references found in the formal search are being provided to the Examiner along with a respective Information Disclosure Statement.

7. Further, Applicant has a good knowledge of the pertinent prior art. Specifically, Lawrence G. Hopkins has been working in the air handling industry for 19 years. Mr. Hopkins received a Bachelor of Science degree in Mechanical Engineering from the University of Portland, in 1975 and obtained a Professional Engineering license in Oregon in 1982. Mr. Hopkins has authored numerous papers on fan and air handler design and presented at industry technical meetings such as the American Society for Heating, Refrigeration and Air conditioning Engineers, Cleanrooms and the Air Movement and Control Association. During his experience, he has never see the claimed combination. Mr. Hopkins has provided me with several non-patent references that I have reviewed. I believe that the claimed invention is patentable over these non-patent references. All such non-patent references are being provided to the Examiner along with a respective Information Disclosure Statement.

8. I believe all the claims in this application as on file are allowable over the art of which I am aware.

Respectfully submitted,



Karen Dana Oster  
Reg. No. 37,621  
Of Attorneys of Record  
Tel: (503) 810-2560

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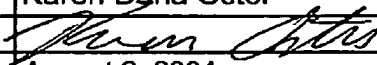
PTO/SB/21 (04-04)

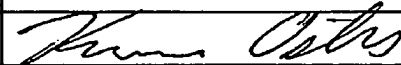
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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<b>TRANSMITTAL FORM</b> (to be used for all correspondence after initial filing)	Application Number	10/806,775	
	Filing Date	March 22, 2004	
	First Named Inventor	Hopkins	
	Art Unit		
	Examiner Name		
Total Number of Pages in This Submission	9	Attorney Docket Number	Hunt:FanArr1

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form in duplicate <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Filing receipt with corrections indicated thereon; copy of Page 1 of original application; copy of Preliminary Amendment
Remarks: Please correct filing receipt to reflect that the present application is a continuation-in-part application of PCT Patent Application Serial Number PCT/US2004/008578, filed March 19, 2004, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS and is a nonprovisional application claiming the benefit under 35 USC Section 119(e) of U.S. Provisional Patent Application Serial Number 60/554,702, filed March 20, 2004, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS.		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm or Individual name	Karen Dana Oster	
Signature		
Date	August 2, 2004	

CERTIFICATE OF TRANSMISSION/MAILING		
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.		
Typed or printed name	Karen Dana Oster	
Signature		Date
		August 2, 2004

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

CL 108



Aug 02 04 07:17a

KAREN

503-638-0367

p. 3

PTO/SB/17 (10-03)

Approved for use through 07/31/2008. OMB 0651-0032  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**FEE TRANSMITTAL  
for FY 2004**

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)

0

**Complete if Known**

Application Number 10/806,775

Filing Date March 22, 2004

First Named Inventor Hopkins

Examiner Name

Art Unit

Attorney Docket No. Hunt:FanArr1

**METHOD OF PAYMENT (check all that apply)**☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit Account:Deposit  
Account  
Number  
Deposit  
Account  
Name

50-2115

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments☒ Charge any additional fee(s) or any underpayment of fee(s)☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1)			(\$)

0

**2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent Claims	-20** =	X	0
Multiple Dependent	-3** =	X	0

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

0

\*\*or number previously paid, if greater. For Reissues, see above

**FEE CALCULATION (continued)****3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	2053 130	Non-English specification	
1812 2,520	2812 2,520	For filing a request for <i>ex parte</i> reexamination	
1804 920*	2804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	2805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	2451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	2460 130	Petitions to the Commissioner	
1807 50	2807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	2806 180	Submission of Information Disclosure Stmt	
8021 40	28021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	2802 900	Request for expedited examination of a design application	

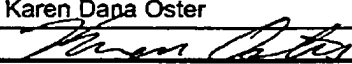
Other fee (specify)

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)

0

**SUBMITTED BY**

Name (Print/Type)	Karen Dapa Oster	Registration No. (Attorney/Agent)	37,621	Telephone	(503) 810-2560
Signature		Date	August 2, 2004		

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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503-638-0367

p. 4

Page 1 of 2



## UNITED STATES PATENT AND TRADEMARK OFFICE

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 Alexandria, Virginia 22313-1450  
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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/806,775	03/22/2004	3744	385	Hunt:FanArr1	15	20	2

26790  
 LAW OFFICE OF KAREN DANA OSTER, LLC  
 PMB 1020  
 15450 SW BOONES FERRY ROAD #9  
 LAKE OSWEGO, OR 97035

CONFIRMATION NO. 2371

## FILING RECEIPT

\*OC000000012930983\*

\*OC000000012930983\*

Date Mailed: 06/14/2004

Receipt is acknowledged of this regular Patent Application: It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

## Applicant(s)

Lawrence G. Hopkins, Portland, OR;

## Assignment For Published Patent Application

HUNTAIR INC., Tualatin, OR;

## Domestic Priority data as claimed by applicant

This appln claims benefit of 60/456,413 03/20/2003

## Foreign Applications

*This application claims benefit of 60/559,702 3/20/04*  
*This application is a continuation-in-part application*  
*of PCT patent application PCT/US2004/008578*  
*3/19/04*

If Required, Foreign Filing License Granted: 06/08/2004

Docketed

Projected Publication Date: 09/23/2004

Non-Publication Request: No

Early Publication Request: No

\*\* SMALL ENTITY \*\*

JUN 16 2004

## Title

Fan array fan section in air-handling systems

Law Office of  
 Karen Dana Oster, LLC  
 Received

CL 110

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KAREN

503-638-0367

p. 5

Page 2 of 2

**Preliminary Class**

454

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Title 35, United States Code, Section 184  
Title 37, Code of Federal Regulations, 5.11 & 5.15**

**GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Office of Export Administration, Department of Commerce (15 CFR 370.10 (j)); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

Aug 02 04 07:19a

KAREN

503-638-0367

p. 6

Express Mail No. EU122438309US

## FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS

The present application is a nonprovisional application claiming the benefit under 35 USC Section 119(e) of U.S. Provisional Patent Application Serial Number 60/456,413, filed March 20, 2003, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS. The present application is a continuation-in-part application of PCT Patent Application Serial Number \_\_\_\_\_, filed March 19, 2004, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS. The present application is a nonprovisional application claiming the benefit under 35 USC Section 119(e) of U.S. Provisional Patent Application Serial Number \_\_\_\_\_, filed March 20, 2004, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS. The present application is based on and claims priority from these applications, the disclosures of which are hereby expressly incorporated herein by reference.

COPY

Aug 02 04 07:20a

KAREN

503-638-0367

p. 7

Application No. 10/806,775  
Amendment dated August 2, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT APPLICATION EXAMINING OPERATIONS

Applicant: Hopkins Group Art Unit:  
Serial No.: 10/806,775 Examiner:  
Filed: March 22, 2004 Docket No: Hunt:FanArr1  
Title: Fan Array Fan Section in Air-Handling Systems

PRELIMINARY AMENDMENT

Law Office of Karen Dana Oster, LLC  
PMB 1020  
15450 SW Boones Ferry Rd. #9  
Lake Oswego, OR 97035  
August 2, 2004

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Prior to examination, please amend the above-identified patent application  
as follows:

**Amendments to the Specification** begin on page 2 of this paper.

**Remarks/Arguments** begin on page 3 of this paper.

COPY

Page 1

CL 113

Aug 02 04 07:20a

KAREN

503-638-0367

p. 8

Application No. 10/806,775  
Amendment dated August 2, 2004

**Amendments to the Specification:**

Please replace the paragraph beginning at page 1, line 3, with the following rewritten paragraph:

— The present application is a nonprovisional application claiming the benefit under 35 USC Section 119(e) of U.S. Provisional Patent Application Serial Number 60/456,413, filed March 20, 2003, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS. The present application is a continuation-in-part application of PCT Patent Application Serial Number PCT/US2004/008578 [[ ]], filed March 19, 2004, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS. The present application is a nonprovisional application claiming the benefit under 35 USC Section 119(e) of U.S. Provisional Patent Application Serial Number 60/554,702 [[ ]], filed March 20, 2004, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS. The present application is based on and claims priority from these applications, the disclosures of which are hereby expressly incorporated herein by reference. —

Page 2

COPY

CL 114

Aug 02 04 07:21a

KAREN

503-638-0367

p. 9

Application No. 10/806,775  
Amendment dated August 2, 2004

#### REMARKS

Applicant is amending the specification of the present invention to specifically include the serial numbers of the applications from which this application claims priority. In the originally submitted application, the priority applications were identified with all the information in applicant's possession at the time of filing. Identifying information of the priority applications included the filing dates and titles.

Applicant respectfully submits that the specification be amended and that appropriate priority be given. Applicant respectfully requests that a corrected filing receipt be provided.

A copy of this Preliminary Amendment is being sent by facsimile directly to the Office of Initial Patent Examination's Filing Receipt Corrections.

Please charge Deposit Account No. 50-2115 for any additional fees which may be required.

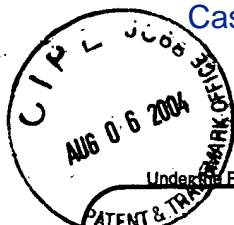
Respectfully submitted,



Karen Dana Oster  
Reg. No. 37,621  
Of Attorneys of Record  
Tel: (503) 810-2560

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PTO/SB/21 (04-04)

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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<b>TRANSMITTAL FORM</b> (to be used for all correspondence after initial filing)	Application Number	10/806,775	
	Filing Date	March 22, 2004	
	First Named Inventor	Hopkins	
	Art Unit		
	Examiner Name		
Total Number of Pages in This Submission	7	Attorney Docket Number	Hunt:FanArr1

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form in duplicate <input type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment/Reply <input checked="" type="checkbox"/> Preliminary <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): <div style="font-size: 24pt; text-align: center;">see remarks</div>
Remarks return receipt postcard		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm or Individual name	Karen Dana Oster	
Signature		
Date	August 2, 2004	

CERTIFICATE OF TRANSMISSION/MAILING		
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.		
Typed or printed name	Karen Dana Oster	
Signature		Date August 2, 2004

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Approved for use through 07/31/2006. OMB 0651-0032  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE  
to a collection of information unless it displays a valid OMB control number.

# FEE TRANSMITTAL

## for FY 2004

☒ Applicant claims small entity status. See 37 CFR 1.27

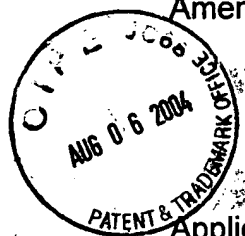
Attorney Docket No.	Hunt:FanArr1
---------------------	--------------

August 2, 2004

**If you need assistance in completing the form, call 1-800-FTO-9199 and select option 2.**

Application No. 10/806,775

Amendment dated August 2, 2004



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT APPLICATION EXAMINING OPERATIONS

Applicant: Hopkins

Group Art Unit:

Serial No.: 10/806,775

Examiner:

Filed: March 22, 2004

Docket No: Hunt:FanArr1

Title: Fan Array Fan Section in Air-Handling Systems

PRELIMINARY AMENDMENT

Law Office of Karen Dana Oster, LLC  
PMB 1020  
15450 SW Boones Ferry Rd. #9  
Lake Oswego, OR 97035  
August 2, 2004

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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as follows:

**Amendments to the Specification** begin on page 2 of this paper.

**Remarks/Arguments** begin on page 3 of this paper.

Application No. 10/806,775  
Amendment dated August 2, 2004

**Amendments to the Specification:**

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-- The present application is a nonprovisional application claiming the benefit under 35 USC Section 119(e) of U.S. Provisional Patent Application Serial Number 60/456,413, filed March 20, 2003, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS. The present application is a continuation-in-part application of PCT Patent Application Serial Number PCT/US2004/008578 [[\_\_\_\_\_] ], filed March 19, 2004, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS. The present application is a nonprovisional application claiming the benefit under 35 USC Section 119(e) of U.S. Provisional Patent Application Serial Number 60/554,702 [[\_\_\_\_\_] ], filed March 20, 2004, and entitled FAN ARRAY FAN SECTION IN AIR-HANDLING SYSTEMS. The present application is based on and claims priority from these applications, the disclosures of which are hereby expressly incorporated herein by reference. --

Application No. 10/806,775  
Amendment dated August 2, 2004

REMARKS

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Applicant respectfully submits that the specification be amended and that appropriate priority be given. Applicant respectfully requests that a corrected filing receipt be provided.

A copy of this Preliminary Amendment is being sent by facsimile directly to the Office of Initial Patent Examination's Filing Receipt Corrections.

Please charge Deposit Account No. 50-2115 for any additional fees which may be required.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Karen Oster", is written over a horizontal line.

Karen Dana Oster  
Reg. No. 37,621  
Of Attorneys of Record  
Tel: (503) 810-2560

L Number	Hits	Search Text	DB	Time stamp
7	7514	fan same array	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/09 15:44
8	1078	(fan same array ) and cool	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/09 15:44
9	142	((fan same array ) and cool) and (fan same controller)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/09/09 15:53



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 Alexandria, Virginia 22313-1450  
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45

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,775	03/22/2004	Lawrence G. Hopkins	Hunt:FanArrl	2371

26790 7590 09/15/2004

LAW OFFICE OF KAREN DANA OSTER, LLC  
 PMB 1020  
 15450 SW BOONES FERRY ROAD #9  
 LAKE OSWEGO, OR 97035

EXAMINER
----------

NGUYEN, NINH H

ART UNIT	PAPER NUMBER
----------	--------------

3745

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



**Office Action Summary**

Application No.

10/806,775

Applicant(s)

HOPKINS, LAWRENCE G.

Examiner

Ninh H. Nguyen

Art Unit

3745

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 03/22/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

Application/Control Number: 10/806,775  
Art Unit: 3745

Page 2

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Simon (4,767,262).

Simon discloses a fan array fan section (Figs. 1-4) comprising: at least three fan units (Fig. 1); the at least three fan units arranged in a fan array (Fig. 1); an air-handling compartment within which the fan array of fan units is positioned (PC casing); an array controller 8 for controlling the at least three fan units to run at substantially peak efficiency;

wherein the air-handling compartment has an airway path, the airway path being less than 72 inches (judging on the size of a PC);

wherein the at least three fan units is a plurality of fan units arranged in a true array configuration (Fig. 1);

wherein the at least three fan units are plenum fans include at least two vertically arranged fan units (Fig. 1);

wherein each of the at least three fan units are positioned within a fan unit chamber (half-shells 2, 15);

wherein each of the at least three fan units is suspended within a fan unit chamber such that there is an air relief passage therebelow (the opening beneath the only fan shown in Fig. 1);

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wherein each of the at least three fan units is positioned within a fan unit chamber having at least one insulation surface (col. 2, lines 26-38);

wherein each of the at least three fan units are mounted in a grid system (Fig. 1) ; and

wherein each of the at least three fan units has a fan wheel diameter, wherein spacing between the at least three fan units is less than 60% of the fan wheel diameter (Fig. 1).

### *Prior Art*

The prior art made of record but not relied upon is considered pertinent to applicant's disclosure and consists of 2 patents.

Krofchalk (5,370,576) and Ostrowski (6,072,397) are cited to show different fan array assemblies.

### *Conclusion*

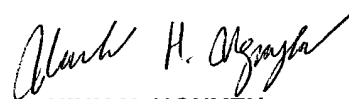
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Ninh Nguyen whose telephone number is (703) 305-0061. The examiner can be normally reached on Monday-Friday from 7:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look, can be reached at (703) 308-1044. The fax number for this group is 703-872-9306.

Application/Control Number: 10/806,775  
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Page 4

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.



**NINH H. NGUYEN**  
**PRIMARY EXAMINER**

Nhn  
September 10, 2004

PTO/SB/08a (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

1

of

2

**Complete if Known**

Application Number	
Filing Date	March 22, 2004
First Named Inventor	Hopkins
Art Unit	3745
Examiner Name	NINH NGUYEN
Attorney Docket Number	HuntFanArr1

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
Ninh		US- 4767262	08-30-1988	Simon	
		US- 4133374	01-09-1979	York	
		US- 5632677	05-27-1997	Elkins	
		US- 6155335	12-05-2000	Acre et al.	
		US- 6386969 B1	05-14-2002	O'Brien	
		US- 6388880 B1	05-14-2002	El-Ghobashy et al.	
		US- 6407918 B1	06-18-2002	Edmunds et al.	
		US- 6414845 B2	07-02-2002	Bonet	
	US- 6427455 B1	08-06-2002	Furubayashi		
Ninh		US- 6436130	08-20-2002	Philips et al.	
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**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>

Examiner  
Signature

Ninh H. Nguyen

Date  
Considered

09/10/04

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

<b>Notice of References Cited</b>	Application/Control No. 10/806,775	Applicant(s)/Patent Under Reexamination HOPKINS, LAWRENCE G.	
	Examiner Ninh H. Nguyen	Art Unit 3745	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-4,767,262	08-1988	Simon, Peter	415/119
	B	US-5,370,576	12-1994	Krofchalk, Gary F.	454/143
	C	US-6,072,397	06-2000	Ostrowski, Gary	340/588
	D	US-			
	E	US-			
	F	US-			
	G	US-			
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	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
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**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
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	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

**Search Notes****Application No.**

10/806,775

**Examiner**

Ninh H. Nguyen

**Applicant(s)**

HOPKINS, LAWRENCE G.

**Art Unit**

3745

**SEARCHED**

Class	Subclass	Date	Examiner
415	60	9/10/2004	<i>NHN</i>
	61		
	108		
	177		
	119		
416	120		

**INTERFERENCE SEARCHED**

Class	Subclass	Date	Examiner

**SEARCH NOTES  
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
East search	9/10/2004	<i>NHN</i>



**Index of Claims**

Application No.

10/806,775

Examiner

Ninh H. Nguyen

Applicant(s)

HOPKINS, LAWRENCE G.

Art Unit

3745

✓	Rejected
=	Allowed

—	(Through numeral) Cancelled
+	Restricted

N	Non-Elected
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Claim		Date											
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	1	✓											
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